

REMARKS

Favorable reconsideration of this application in view of the foregoing amendments and remarks to follow is respectfully requested.

In the outstanding Office Action, amended paragraphs 0037 and 0048 stand objected to for allegedly introducing new matter. Claims 1 – 11, 13, and 16 – 25 stand rejected to under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Further, Claims 1 – 11, 13, and 16 – 25 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as allegedly unpatentable over, U.S. Patent No. 6,800,518 to Bebdernagel et al. (“Bebdernagel” hereafter) which incorporates U.S. Patent No. 5,930,643 to Sadana et al. (“Sadana” hereafter).

In response to the Examiner’s objection to the previous amendments to paragraphs 0037 and 0048 in Applicants’ Request for Continued Examination dated December 31, 2008, Applicants have amended paragraphs 0037 and 0048 to undo the previous amendments, thereby reinstating paragraphs 0037 and 0048 as originally filed. Applicants submit that the objection to the amendments to paragraphs 0037 and 0048 of December 31, 2008 has been obviated.

In response to the Examiner’s rejection of Claims 1 – 11, 13, and 16 – 25, Applicants have cancelled Claims 1 – 11, 13, and 16 – 25 and added Claims 26 – 42.

New Claims 26, 31, and 36 positively recite “forming a porous silicon containing region having a porosity of about 0.01% or greater in an upper portion of a Si-containing substrate; [and] forming a single crystal Si-containing layer directly on top of said porous silicon containing region by epitaxial deposition.” Support for this amendment is found, for example, at paragraphs

0026, 0027, 0028, 0030, and 0035 and FIGS. 2A and 2B of the instant application.

New Claim 26 positively recites “forming an oxygen implant region by implanting oxygen atoms into said wafer, wherein the oxygen peak is located within said porous silicon containing region or at an interface between said single crystal Si-containing layer and said porous silicon containing region.” Support for this amendment is found, for example, at paragraphs 0037 and 0042 and FIG. 2C of the instant application. Further, new Claim 26 positively recites “annealing said wafer using a thermal oxidation process at a temperature at which said implanted oxygen precipitates as oxides, wherein said precipitated oxides combine to form a uniform buried oxide layer extending across an entirety of a semiconductor-on-insulator (SOI) wafer, wherein said porous silicon containing region includes voids that are located beneath said uniform buried oxide layer after said annealing, wherein a variation of thickness of said uniform buried oxide layer across said entirety of said SOI wafer is less than 30% of a total thickness of said uniform buried oxide layer, and wherein a Si-containing over-layer is formed from a remaining portion of said single crystal Si-containing layer.” Support for this amendment is found, for example, at paragraphs 0012, 0037, and 0043 and FIGS. 2E and 2G of the instant application.

New Claim 31 positively recites “forming a plurality of patterned oxygen implant regions by implanting oxygen atoms into said wafer, wherein the oxygen peak is located within said porous silicon containing region or at an interface between said single crystal Si-containing layer and said porous silicon containing region.” Support for this amendment is found, for example, at paragraphs 0037 and 0042 and FIG. 2D of the instant application. Further, new Claim 31 positively recites “annealing said wafer using a thermal oxidation process at a temperature at which said implanted oxygen precipitates as oxides, wherein said precipitated oxides combine to

form a plurality of uniform buried oxide regions, wherein said porous silicon containing region includes voids that are located beneath said uniform buried oxide layer after said annealing, wherein a Si-containing over-layer is formed from a remaining portion of said single crystal Si-containing layer, and wherein said porous silicon containing region abuts said single crystal Si-containing layer around said plurality of uniform buried oxide regions.” Support for this amendment is found, for example, at paragraphs 0037 and 0043 and FIGS. 2F and 2H of the instant application.

New Claim 36 positively recites “forming at least one oxygen implant region by implanting oxygen atoms into said wafer, wherein the oxygen peak is located within said porous silicon containing region or at an interface between said single crystal Si-containing layer and said porous silicon containing region.” Support for this amendment is found, for example, at paragraphs 0037 and 0042 and FIGS. 2C and 2D of the instant application. Further, new Claim 36 positively recites “annealing said wafer using a thermal oxidation process at a temperature at which said implanted oxygen precipitates as oxides, wherein said precipitated oxides combine to form at least one uniform buried oxide region during said annealing, wherein remaining pores in said porous silicon containing region collapse into voids beneath said at least one uniform buried oxide regions during said annealing, wherein said porous silicon containing region includes said voids that are located beneath said uniform buried oxide layer after said annealing, and wherein a Si-containing over-layer is formed from a remaining portion of said single crystal Si-containing layer.” Support for this amendment is found, for example, at paragraphs 0012, 0037 and 0043 and FIGS. 2E - 2H of the instant application.

Support for newly added Claims 27, 32, and 37 is found, for example, at paragraph 0043 of the instant application.

Support for newly added Claims 28, 33, and 40 is found, for example, at paragraphs 0012 and 0028 of the instant application.

Support for newly added Claims 29, 34, and 41 is found, for example, at paragraph 0048 of the instant application.

Support for newly added Claims 30, 35, and 42 is found, for example, at paragraphs 0038 and 0050 of the instant application.

Support for newly added Claim 38 is found, for example, at paragraphs 0012, 0037, and 0043 and FIGS. 2E and 2G of the instant application.

Support for newly added Claim 39 is found, for example, at paragraphs 0037 and 0043 and FIGS. 2F and 2H of the instant application.

Since the present amendments do not introduce new matter into the instant application, entry thereof is respectfully requested.

Applicants submit that newly added Claims 26 – 42 of the instant application are patentable.

Particularly, Applicants observe that Bender Nagel does not disclose a method “wherein said porous silicon containing region includes voids located beneath said uniform buried oxide layer after said annealing.” Applicants observe that voids in Bender Nagel are void planes 27 that are located to the side of buried insulating regions 26, but are not formed beneath buried insulating regions 26. Therefore, Bender Nagel does not anticipate the method positively recited in the pending Claims of the instant application.

Further, Applicants observe that the combination of Bender Nagel and Sadana does not teach or suggest a method “wherein said porous silicon containing region includes voids located beneath said uniform buried oxide layer after said annealing.” As discussed above,

Bendernegal is defective in this regard. Sadana does not alleviate this defect because Sadana does not disclose any region including voids, let alone voids located beneath a uniform buried oxide layer. Therefore, the combination of Bendernegal and Sadana does not teach or suggest the method positively recited in the pending claims of the instant application.

Further, there is no motivation in the applied references which suggest modifying the disclosed methods to include the methods recited in the claims of the present invention. Thus, there is no motivation provided in the applied references, or otherwise of record, to make the modification mentioned above. "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Vaeck, 947 F.2d, 488, 493, 20 USPQ 2d. 1438, 1442 (Fed.Cir. 1991).

Thus, in view of the foregoing amendments and remarks, it is firmly believed that the pending claims of the instant application are patentable.

In light of the foregoing remarks, Applicants respectfully requests reconsideration and allowance of the pending claims in this application.

Respectfully submitted,



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